Statistics

Lecture 52

Feb 19-8:47 AM

S6 35

Comparing at least 3 pop. means

H_0: $\mu_1 = \mu_2 = \mu_3 = \cdots = \mu_K$

H_1: At least one mean is different. RTT

k → # of groups ⇒ Ndf = k-1 CTS F

n → Total Sample Sizes ⇒ Ddf = n-k ⇒ P-Value P

Method: ANOVA (Analysis of Variance)

Store informations in L1, L2, L3, ..., Lk

STAT TESTS ↑ ANOVA(L1, L2, L3, ..., Lk) Enter

Use P-Value Method

Draw final conlusion about the claim.

Dec 5-8:51 AM

I randomly selected exams from 3 colleges and here are the Scores.

ELAC	Mt. SAC	Chaffey
75 83 100	65 86 100	73 95 99
68 95 88	78 90 95	80 70 82
70		

NO $\alpha \rightarrow .05$

Test the claim that all Pop. means are the Same.

$K = 3$ $\Rightarrow$ $Ndf = K-1 = 2$ CTS F=

$n = 7+6+6 = 19$ $\Rightarrow$ $Ddf = n-K = 16$ $\Rightarrow$ P-Value P=

$H_0: \mu_1 = \mu_2 = \mu_3$ claim

H_1: At least one pop. mean is different. RTT

We use ANOVA because we compare at least 3 Pop. means.

ELAC $\rightarrow$ L1
Mt. SAC $\rightarrow$ L2
Chaffey $\rightarrow$ L3

STAT → TESTS ↑ → ANOVA(L1, L2, L3) → Enter

CTS F=.106
P-Value P=.900

P-Value $> \alpha$
.900 .05

H_0 Valid
H_1 invalid

Valid claim

FTR the claim

Dec 5-8:58 AM

I randomly selected students from 4 schools. Chart below shows their ages.

ELAC	Mt. SAC	Chaffey	UCLA
23 28 18	25 27 18	26 19 29	26 32 40 28
20 32 30	17 30 35	20 33 25	20 35 52 45
19 25	20 21		

Use $\alpha = .1$ to test the claim that not all pop. means are the Same.

$K = 4$ $\Rightarrow$ $Ndf = K-1 = 3$ $\Rightarrow$ CTS F

$n = 8+8+6+8 = 30$ $\Rightarrow$ $Ddf = n-K = 26$ P-ValueP

$H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$

H_1: At least one pop. mean is different. claim

RTT

ELAC $\rightarrow$ L1
Mt.SAC $\rightarrow$ L2
Chaffey $\rightarrow$ L3
UCLA $\rightarrow$ L4

use ANOVA because we are Comparing at least 3 pop. means.

STAT → TESTS ↑ → ANOVA(L1, L2, L3, L4) → Enter

CTS F = 3.844
P-Value P = .021

P-Value $< \alpha$
.021 .1

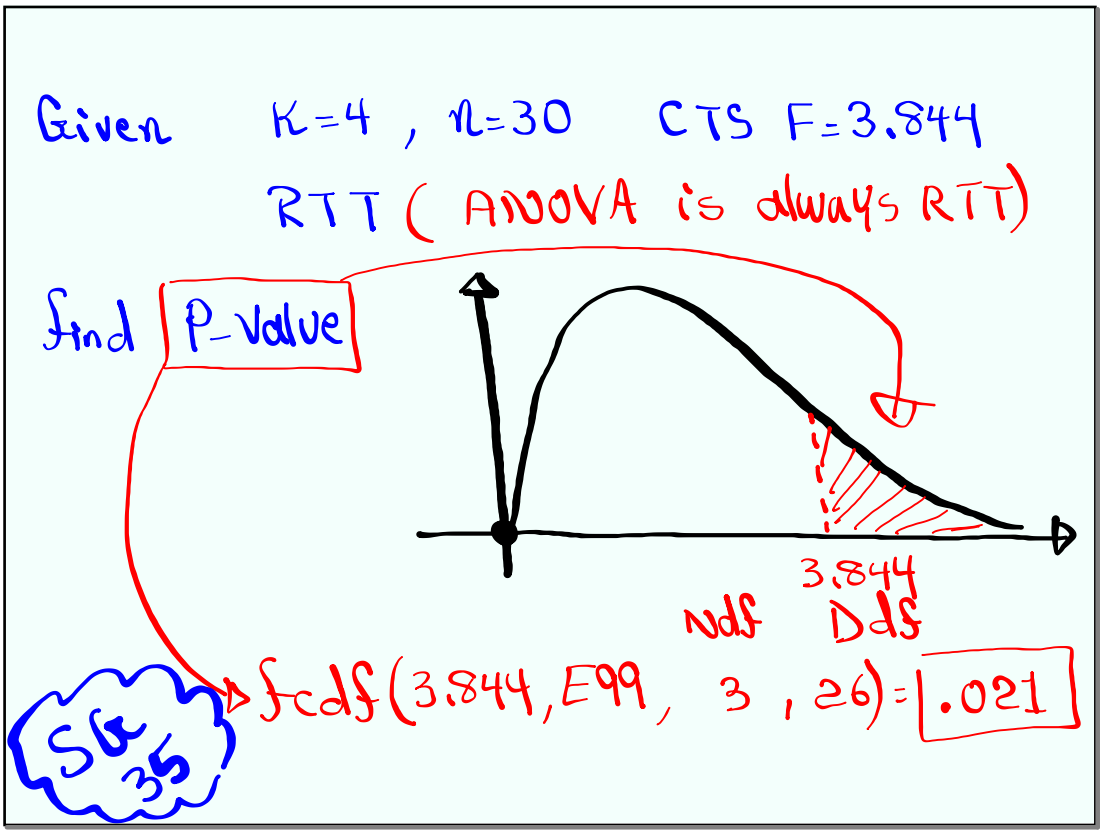
H_0 invalid
H_1 Valid → Valid claim → FTR the claim

If $\alpha = .01$

P-Value $> \alpha$ → H_0 Valid
.021 .01
H_1 invalid → Invalid claim

→ Reject the claim

Dec 5-9:11 AM


Given K=4 , n=30 CTS F=3.844
RTT (ANOVA is always RTT)
find P-Value
3.844
Ndf Ddf
fcdf(3.844, E99, 3 , 26)=.021
SE 35

Dec 5-9:27 AM